Both potassium nitrate and potassium sulfate have a lower salt index, indicating that they are less likely to increase soil salt levels. The potassium nitrate at this rate will also supply 0.3 to 0.9 lbs N per 1000 $ft^2$.

**Nitrogen** is the nutrient that most frequently limits plant growth, and is often the only nutritional element that accelerates the growth of ornamental plants. Unfortunately, nitrogen is also the most difficult nutrient to manage. Unlike other nutrients, it is not possible to accurately determine from a soil test how much nitrogen is required. The challenge is to maintain adequate nitrogen levels to meet the plant requirements without damaging the plants. Surface application is not only the most cost effective method of nitrogen application but it is also the most efficient in getting the nutrient into the plant.

Nitrogen can be supplied with two different approaches and both work very well. Nitrogen can be applied in a ① water soluble form which includes liquid feed and granular fertilizers (Table 4) or ② slow release forms. If using a water soluble fertilizer, apply it every 4 to 8 weeks throughout the bedding plant season, applying a total of no more than 4 to 6 lbs N per 1000 $ft^2$ during the growing season. If using liquid feed, apply every 1 to 4 weeks, using 1 quart per $ft^2$ of bed area. With slow release fertilizers, applications should be divided into two applications. The first application should be incorporated into the bed just before planting and the second should be broadcast over the bed midway through the growing season. If using a slow release fertilizer as a nitrogen source that contains P and K as well, additional application of P and K may not be needed. The seasonal total application of slow release fertilizer should not exceed 4 to 6 lbs N per 1000 $ft^2$ of bed area.

In summary, preparing and managing landscape beds for bedding plant use can be broken down into the following steps:

❶ Determine the soil texture.

❷ Determine the amendment needs and add amendments, if needed for drainage and aeration.

❸ Take a soil test to determine soil nutrient and pH needs after adding drainage and aeration amendments.

❹ Incorporate recommended fertilizer and/or liming material.

❺ Manage water and nitrogen during the growing season.

***Table 4. Suggested nitrogen sources, application methods, intervals between applications and application rates for bedding plants in the landscape.***

| | | Applied as a dry material broadcast uniformly over the bed surface<br>Weeks between applications (number of applications per season) | | | Applied as a liquid feed using 1 quart per square foot of bed area at each application<br>Weeks between applications (number of applications per season) | | |
|---|---|---|---|---|---|---|---|
| | | 4 wks (5 apps.) | 6 wks (3 apps.) | 8 wks (2 apps.) | 1 wk (18 apps.) | 2 wks (9 apps.) | 4 wks (5 apps.) |
| Nitrogen source | Effect on soil pH | lbs/1000 sq.ft. to apply at each app. | | | lbs/100 gallons of solution | | |
| Ammonium nitrate (33.5-0-0) | moderately acidic | 2 lbs 6 oz | 4 lbs | 6 lbs | 4.5 oz | 9 oz | 1 lb |
| Ammonium sulfate (20-0-0) | very acidic | 4 lbs | 6 lbs 11 oz | 10 lbs | 7 oz | 14 oz | 1 lb 10 oz |
| Calcium nitrate (15.5-0-0) | moderately basic | 5 lbs 3 oz | 8 lbs 10 oz | 12 lbs 14 oz | 9 oz | 1 lb 2 oz | 2 lbs 1 oz |
| Potassium nitrate (13-0-44) | slightly basic | 6 lbs 2 oz | 10 lbs 4 oz | 15 lbs 6 oz | 11 oz | 1 lb 6 oz | 2 lbs 7 oz |

Nitrogen recommendations are based on delivering a seasonal total of approximately 4 lbs N/1000 sq. ft. of bed area.